Claims:

1.   A method for data communication over a powerline net-
work, wherein a transmission channel is divided into a plu-
rality of subchannels each having a partial power as its part
of a predetermined total transmission power and a partial
rate as its data rate,

    wherein initially a partial power is fixed and a signal
to noise ratio is obtained for each subchannel and the sub-
channels are then processed one after the other each with the
following steps:

    (a) calculating the partial rate of the present subchan-
nel in accordance with its signal to noise ratio so as to re-
sult in a predetermined transmission error rate,

    (b) quantising said calculated partial rate, and

    (c) adapting the partial power of the present subchannel
to a change of the partial rate due to said quantisation, so
that said predetermined transmission error rate of the pre-
sent subchannel is maintained; determining the partial power
of another subchannel anew based on the adapted partial power
of the present subchannel so that said predetermined total
transmission power of all subchannels is maintained; and ob-
taining a signal to noise ratio of said other subchannel in
adaptation to its newly determined partial power.

2.   A method according to claim 1, wherein the subchannels
are processed one after the other starting with the one hav-

ing the lowest signal to noise ratio, to that one having the highest signal to noise ratio, and steps (a) to (c) are conducted for each processed subchannel,

said quantisation in step (b) includes a lowering of the partial rate of the presently processed subchannel to an integer value, and

in step (c), the partial power of the presently processed subchannel is lowered and the partial powers and the signal to noise ratios of those other subchannels are increased accordingly, which have not yet been processed.

3.   A method according to claim 1, wherein the subchannels are processed one after the other starting with the one having the highest signal to noise ratio to the one having the lowest signal to noise ratio, and steps (a) to (c) are conducted for each processed subchannel,

said quantisation in step (b) includes increasing the partial rate of the processed subchannel to an integer value, and

in step (c), the partial power of the processed subchannel is increased and the partial powers and the signal to noise ratios of those other subchannels which have not yet been processed are decreased accordingly.

4.   A method according to claim 1, wherein the subchannels are sorted in descending order of their signal to noise ratios and are thus stored into a table held in a memory.

5.   A method according to claim 1, wherein the initially de-termined partial power is the same for each subchannel and the initial signal to noise ratio for each subchannel is ob-tained by repeatedly transmitting a signal on each subchannel with the same partial power, receiving said signal, measuring for each repetition the deviation of the received signal from the transmitted signal and calculating the signal to noise ratio from an averaged deviation.

6.   A method according to claim 1, wherein said predeter-mined transmission error rate is the same for all subchan-nels.

7.   A method according to claim 1, wherein user data are subsequently communicated while repeatedly measuring the ac-tual transmission error rate, and wherein upon a certain dif-ference between the measured transmission error rate from said predetermined transmission error rate, the signal to noise ratio is again obtained for each subchannel and steps (a) to (c) are again executed for each subchannel.

8.   A method according to claim 1, wherein data transmission on each subchannel is made by quadrature amplitude modula-tion.

9. An apparatus for data communication over a powerline network wherein a transmission channel is divided into a plurality of subchannels each having a partial power as its part of a predetermined total transmission power and having a partial rate as its data rate, comprising:

means for initially determining a partial power and obtaining a signal to noise ratio for each subchannel and for then processing the subchannels one after the other with:

a processor for: calculating the partial rate of the presently processed subchannel in accordance with its signal to noise ratio so as to result in a predetermined transmission error rate; quantising the calculated partial rate; adapting the partial power of the present subchannel in accordance with a change in the partial rate due to said quantisation, so that said predetermined transmission error rate of the present subchannel is maintained; newly determining the partial power of another subchannel in accordance with said adapted partial power of the present subchannel so that said predetermined total transmission power of all subchannels is maintained; and obtaining a signal to noise ratio of said other subchannel in adaptation to its newly determined partial power.